# Exploratory Factors and Reliability Analysis of Entrepreneurial quality to Assess Undergraduates Returning to their Hometowns for Entrepreneurship

(Faktor Penerokaan dan Analisis Kebolehpercayaan Kualiti Keusahawanan untuk Menilai Siswazah Pulang ke Kampung Halaman untuk Keusahawanan)

WENJIN ZHANG, SHEERAD SAHID* & RADIN SITI AISHAH RADIN A RAHMAN

**Abstract**

Entrepreneurial Quality (EQ) emphasizes the pivotal role of intrinsic motivation in shaping outstanding entrepreneurs, driving business success, and fostering economic development at a deeper level. However, research on the dimensions of entrepreneurial quality among university students returning to Shandong, China to start businesses remains insufficient. Therefore, this study aims to establish the reliability of a measurement tool for entrepreneurial quality among university students through exploratory factor analysis (EFA) and reliability analysis. Additionally, this study conducted a self-administered questionnaire survey among Chinese university students. A sample of 150 respondents was randomly selected from university students in Shandong Province, China, who expressed intentions to return to their hometowns for entrepreneurship. To measure the construct of self-directed learning, 15 scale items were retained for data collection, as all item factor loadings exceeded the 0.50 threshold and were not excluded. This study empirically validated the dimensions of entrepreneurial competence development among returning university students, with findings holding significant implications for guiding Chinese students returning to their hometowns to start businesses.

**Abstrak**

Kualiti Keusahawanan (EQ) menekankan peranan penting motivasi intrinsik dalam membentuk usahawan yang cemerlang, memacu kejayaan perniagaan, dan memupuk pembangunan ekonomi pada tahap yang lebih mendalam. Walau bagaimanapun, penyelidikan mengenai dimensi kualiti keusahawanan dalam kalangan pelajar universiti yang kembali ke Shandong, China untuk memulakan perniagaan masih tidak mencukupi. Oleh itu, kajian ini bertujuan untuk mewujudkan kebolehpercayaan alat ukuran kualiti keusahawanan dalam kalangan pelajar universiti melalui analisis faktor penerokaan (EFA) dan analisis kebolehpercayaan. Selain itu, kajian ini menjalankan tinjauan soal selidik yang ditadbir sendiri dalam kalangan pelajar universiti Cina. Sampel 150 responden dipilih secara rawak daripada pelajar universiti di Wilayah Shandong, China, yang menyatakan hasrat untuk pulang ke kampung halaman untuk keusahawanan. Untuk mengukur konstruk pembelajaran terarah kendiri, 15 item skala dikekalkan untuk pengumpulan data, kerana semua pemuatan faktor item melebihi ambang 0.50 dan tidak dikecualikan. Kajian ini secara empirikal mengesahkan dimensi pembangunan kecekapan keusahawanan dalam kalangan pelajar universiti yang kembali, dengan penemuan mempunyai implikasi yang signifikan untuk membimbing pelajar Cina pulang ke kampung halaman mereka untuk memulakan perniagaan.

## Introduction

The world is presently at the nexus of a new technological revolution and industrial transformation (Matyushok et al., 2021). New-quality productive forces, driven primarily by technological innovation, amalgamate advanced technologies, including digital and green technologies, with production factors to transform economic structures and foster the emergence of new industries(Liang & Huang, 2025). By 2025, the world has achieved significant progress in fields such as artificial intelligence, quantum computing, biotechnology, and commercial space exploration(Prasad Singh & Murugesan, 2025). These breakthroughs have created an increasingly urgent demand for high-caliber innovation and entrepreneurship talent possessing innovative thinking, cross-disciplinary integration capabilities, technological application expertise, and resilience in the face of risks (NEWS, 2025). China's high-tech manufacturing output exceeding designated size increased by 9.2% compared to the previous year. Advancements surged in advanced domains such as artificial intelligence and embodied intelligence, while strategically emerging industrial clusters swiftly proliferated and gained prominence, providing substantial impetus for high-quality economic development (China Central Television Network, 2025).

In this context, there is a pressing demand for exceptional innovation and entrepreneurship talent proficient in innovative thinking, interdisciplinary integration, technological application, and risk resilience(Ibrahim & Adeniyi, 2024). As the fundamental reserve force for innovation-driven development, fostering the innovation and entrepreneurship skills of university students has emerged as a pivotal focus for higher education reform(Reimers, 2024). The present condition of student entrepreneurship in China encounters significant obstacles—statistics indicate that the student entrepreneurship rate in China is merely approximately 2%, markedly lower than the 20%-30% rates observed in developed nations such as the United States and the United Kingdom(Ng, 2023). Despite approximately 90% of contemporary university students demonstrating entrepreneurial aspirations, the actual success rate is markedly low, averaging below 5%. In provinces with conducive entrepreneurial climates such as Zhejiang, the success rate remains approximately 5%, significantly lower than the average success rate of university student entrepreneurship in European and American nations, which is around 20% (Huimin et al., 2018; J. Zhang et al., 2025).

As China's rural revitalization policy is put into action more deeply, encouraging and helping university students to return to their hometowns to establish enterprises has become an important way to boost rural economic and social growth and improve the chances of success for entrepreneurs(He & Ding, 2023). In the last few years, the government has put in place a number of rules that make it easier for college students to establish enterprises in their hometowns(Jiang & Zhang, 2024). In this context, more and more university students are opting to go back home to start their own businesses, which is a big part of rural revival(Chen & Chen, 2023a). But these students have a lot of problems, such not having enough business skills, not having enough funding, and not having enough experience(Amesi, 2018). This shows that there is an urgent need

for a scientific and effective way to test their entrepreneurial skills, which would help policymakers and entrepreneurs make decisions.

This study, contextualized within the global technological revolution and industrial transformation, investigates effective strategies for cultivating entrepreneurial skills among university students, yielding substantial theoretical importance and practical implications. Its theoretical significance lies in the advancement of the theoretical framework for evaluating entrepreneurial competencies through the creation of a three-dimensional assessment model centered on innovation, inspiration assimilation, and risk-taking (Carayannis et al., 2015; Liu, 2024; Ranasinghe et al., 2018). This offers a novel theoretical framework for research in global entrepreneurship education. Its practical significance offers scientific rationale and actionable strategies for the reform of innovation and entrepreneurship education in higher education institutions(Shao et al., 2024). This strategy increases the success rate of student businesses, teaches them how to innovate and be an entrepreneur at a high level that meets the needs of new productive forces, and gives the global economy and society a new boost.

Despite the significance of entrepreneurial competence for college students' endeavors in the 21st century, there is a lack of specific instruments to assess these attributes within entrepreneurship education. The research indicates a lack of specific questionnaires or systematic evaluation methods for assessing college students' self-perception of the three essential entrepreneurial traits: creativity, inspiration, and risk-taking. Notwithstanding extensive study and expansion in several business sectors, including management, economics, and marketing, contemporary studies on entrepreneurial skills mostly concentrate on urban entrepreneurial environments or the assessment of overarching entrepreneurial competence(Pennetta et al., 2023). Research on assessing the entrepreneurial capabilities of college students returning to their hometowns to launch businesses remains limited (Jiang & Zhang, 2024). This study aims to rectify this shortcoming by developing a tailored assessment tool to validate the effectiveness of the three elements of active learning in entrepreneurship education. The current study gap requires the immediate development of an assessment tool, as it will significantly enhance our understanding of the mechanisms involved in fostering entrepreneurial abilities among college students who return to their hometowns. The development of this measure will facilitate comprehensive empirical study, enhancing our understanding of the efficacy of entrepreneurial traits, particularly on how students use innovative techniques upon returning to their hometowns to establish firms.

Therefore, this study aims to:

1. Identify the underlying dimensions of entrepreneurial quality among university students returning to their hometowns for entrepreneurship;
2. Develop and validate an entrepreneurial quality measurement instrument;
3. Examine the reliability and construct validity of the instrument using exploratory factor analysis (EFA).

Previous studies have developed several instruments to assess entrepreneurial intention, entrepreneurial orientation, entrepreneurial competency, and entrepreneurial behavior among students and entrepreneurs(Mujtaba, Zulkiffli, Padlee, Mohamed, et al., 2025a; Pundziene et al., 2022; Roy & Das, 2022a). However, most existing instruments primarily focus on entrepreneurial intention or general entrepreneurial competency in urban or commercial settings. Limited studies specifically examine entrepreneurial quality among university students returning to their hometowns for entrepreneurship, particularly within the context of rural revitalization in China. Therefore, this study attempts to fill this gap by developing and validating a context-specific entrepreneurial quality scale focusing on creativity, inspiration, and risk-taking dimensions..

## Literature Review

### *Theory of Bounded Rationality Planned Behaviour*

The current study is based on the Bounded Rationality Planned Behaviour (BRPB) theory. It extends the traditional Planned Behaviour Theory by highlighting that people usually make decisions in the situation of limited information, uncertainty, cognitive constraints and situational pressures (Ajzen, 1991; Rogow, 1957). The classical point of view of rational decision-making is contrasted with limited rationality which believes that entrepreneurs do not act on the basis of complete rational appraisals but are affected by environmental uncertainty, emotional drivers, subjective appraisal and resource limitations. However, the entrepreneurial decisions of college students returning to rural areas for entrepreneurship are often constrained by limited entrepreneurial experience, lack of market knowledge, financial pressures, and uncertainty of the rural business environment (Chen & Chen, 2023b; He & Ding, 2023).

In the context of bounded rationality planning behaviour theory, entrepreneurial ability is seen as the capacity of a person to make adaptive entrepreneurial choices in the face of uncertainty. Thus, the current research conceptualises entrepreneurial aptitude in terms of three basic qualities including innovation, inspiration and risk-taking. Creativity refers to the ability to generate innovative solutions given the constraints of resources; inspiration refers to the entrepreneurial motivation and entrepreneurial cognition that are driven from within; and risk-taking refers to the willingness to undertake entrepreneurial actions in the face of uncertainty and incomplete information (Mujtaba, Zulkiffli, Padlee, Mohamed, et al., 2025b; Murnieks et al., 2020a; Roy & Das, 2022a). Thus, limited rationality planning behaviour theory is an appropriate theory to analyse and measure the entrepreneurial ability of college graduates returning to their hometowns for entrepreneurship.

bility to find novel solutions when faced with resource limitations; inspiration reflects the entrepreneur’s intrinsic motivation and cognitive orientation towards entrepreneurship; and risk-taking refers to the inclination to take entrepreneurial actions

when information is incomplete and the environment is uncertain Thus, the theory of bounded rationality planning behaviour offers a suitable theoretical basis for understanding and measuring the entrepreneurial aptitude of college graduates who choose to return to their hometowns to start businesses. Thus, the current research conceptualises the entrepreneurial aptitude in terms of three main elements including innovation, inspiration and risk-taking. Creativity is the ability to come up with innovative solutions under the constraints of resources; inspiration is the entrepreneurial motivation and entrepreneurial cognition driven from within; and risk-taking is the willingness to take entrepreneurial actions in the face of uncertainty and incomplete information (Murnieks et al., 2020; Roy & Das, 2022; Mujtaba et al., 2025). Therefore, limited rationality planning behaviour theory is an appropriate theory to analyse and measure the entrepreneurial ability of college graduates returning to their hometowns for entrepreneurship.

*Entrepreneurial Quality*

Entrepreneurial quality is the sum of a series of dynamic behavioral capabilities that entrepreneurs demonstrate in the process of business operations to enhance the competitiveness and sustainable development of enterprises(Abbas et al., 2019). Entrepreneurship may be defined as the entire capacity of business owners to foster the long-term growth of their companies via the use of innovative strategies, strategic conduct, and internal drive(Dess & Lumpkin, 2005). The ability of entrepreneurs to recognize and capitalize on possibilities in the market, as well as the capacity to deal with uncertainty, is the heart of this concept. However, rather of being a fixed quality, it is a collection of skills that may change over time. illustration,Previous studies have shown that governmental interventions and entrepreneurship education programs may enhance entrepreneurs' innovation capability, collaboration skills, and business performance (Bradley et al., 2021).

For entrepreneurs who have more control over of their entrepreneurship qualities, their intrinsic motivation (such as self-realization and pursuit of innovation) is the core driving force of high entrepreneurial qualities behavior(Cnossen et al., 2019; Murnieks et al., 2020b; Su et al., 2020). In contrast, low entrepreneurial qualities behavior is more driven by external pressure (such as economic needs). When entrepreneurs have strong intrinsic motivation, they are more likely to choose high-growth industries (such as technology and education), carry out innovative activities (such as product development), or actively seek cooperation (such as cross-enterprise alliances). If the entrepreneurial motivation is survival-oriented, the behavior may be limited to low-threshold industries (such as catering and retail), manifested in short-sighted decision-making and low innovation investment(Wilhelm, 1981).

*Creativity*

Creativity and innovation are essential elements in improving the functioning of businesses and regions(Cooke et al. 2024). Although several studies investigate the correlation between human capital, creativity, and regional economic growth, little focus has been directed on the processes that facilitate these effects, particularly at the subregional level, such as inside cities(Faggian et al., 2019; Piergiovanni et al., 2012; Storper & Scott, 2009). A crucial inquiry pertains to the methods by which creativity might be fostered and used to enhance urban economic growth.

The notion of creativity is difficult to define and quantify, but it increasingly has significance for companies and politicians(El-Murad & West, 2004). Creativity in the 1990s was associated with the generation of novel concepts and commercially viable innovations(Yusuf, 2009). A series of research on creativity and entrepreneurship since the late 1990s has posited that creative activity may enhance the performance of individuals, firms, and clusters. McCuen (2023) defined creativity as the act of generating and executing novel concepts that are critically evaluated, rendering other ideas insignificant or inconsequential. Creativity is shown in a person who contributes economic value to a corporation. Thus, individuals with creativity may choose to participate in a creative process and to convert creative ideas into commercially viable goods(Amabile, 1997). Creative activity may provide advantages in problem identification and the connection of new ideas, beyond just product production(Brophy, 1998).

*Inspiration*

Inspiration is a well-known yet complex phenomena. During a spiritual retreat, a writer might get inspiration from above(Kris, 1939). After considering how she overcame a challenging time in her life, a student may be motivated to create a support program. One may be inspired to pursue a professional option that would not have been apparent otherwise by an unexpected role model. Regardless of whether inspiration originates from above, it is often understood to be a particular mental process that promotes learning and growth (Williams, 1997) and is accompanied by a range of feelings, including wonder, adoration, and elevation(Schindler et al., 2013).

A significant corpus of study focuses on entrepreneurship education in relation to modeling entrepreneurial intention among students(W. Zhang et al., 2022). Universities provide a diverse array of educational activities and resources to cultivate entrepreneurship, with extracurricular activities playing a significant role(Bodolica et al., 2021). Two theoretical constructs robustly underpin this connection. Munir et al. (2022) advocate for the use of social-cognitive theory as a cohesive framework for comprehending entrepreneurial education and aim. Angulo (2019) posits that participation in extracurricular activities constitutes a sort of experience learning. Kolb's theory of experiential learning posits that experience serves as a significant source for learning, mindset transformation, and personal growth; individuals indeed learn from their experiences(Kolb, 2014). Experiential learning generates new

information and perspectives via shared experiences, enhancing awareness and attitudes toward entrepreneurship(Motta & Galina, 2023).

*Risk-Taking*

Risk-taking is a fundamental focus of investigation for several schools of economic and management theory(Shapira, 1995). This significance is partly attributable to its influence on economic development and the stimulation of innovation. From a macroeconomic standpoint, the risk perceptions and attitudes of economic entities are significant for the impact of monetary policy on the broader economy(Mohammed & Zheng, 2023). From an innovation perspective, risk-taking is crucial for the establishment of new ventures. This is due to the fact that for ambitious entrepreneurs, establishing a new enterprise is a precarious undertaking, particularly in contrast to pursuing alternative wage jobs. Venture development, while often yielding comparable average returns to wage employment, is inherently riskier due to the far higher variability in its payoffs(Neff, 2012). Frequently, it yields remarkable breakthroughs that advance technical boundaries and disrupt conventional methods to create superior alternatives, as well as catastrophic failures.

The conceptualizations of variable risk preferences by Trimpop (1994), focusing specifically on a distinct form of risk-taking: intermittent risk-taking, characterized by decision-makers oscillating between risk acceptance and avoidance. Serial entrepreneurs—individuals who consistently and sequentially initiate new ventures — serve as a pertinent example(Westhead & Wright, 1998). Indeed, some serial entrepreneurs exhibit persistent risk-seeking behavior as they transition directly from one enterprise to another. However, some individuals participate in sporadic risk-taking by alternating between lower-risk wage work and periods of higher-risk self-employment(Brachert et al., 2020; J. Kim et al., 2023; J. S. H. Kim, 2020). Mariam Naficy, the founder and CEO of Minted, serves as a prime example of this. Prior to establishing Minted, she launched Eve.com, an e-commerce platform for cosmetics.

Following the sale of Eve.com for $110 million, Ms. Naficy served as a manager at The Body Shop for eight years before resuming her entrepreneurial pursuits by establishing Minted, an online stationery retailer that, as of 2021, employed over 2,000 individuals and generated $1.22 billion in sales (Dun & Bradstreet, 2022). Recent research indicate that Ms. Naficy's fluctuating work history is not an isolated occurrence. Carroll and Mosakowski (1987) analyzed the career trajectories of 205 entrepreneurs and found that 33% of the sample had mixed self-employment patterns, regularly transitioning between self-employment, wage employment, unemployment, and training periods. Feng et al. (2022) also note that “the oscillation between paid employment and new ventures is indeed prevalent in entrepreneurial careers.”

**Methodology**

This research used a questionnaire survey approach to uncover relevant variables for assessing entrepreneurial quality among Chinese university students. Quantitative data

were gathered using self-administered questionnaires, and an extensive literature study was performed to identify pertinent entrepreneurial quality metrics for assessment. A stratified random sample and simple random sampling method was used to pick 150 students for the survey. The sample was obtained from 45 public undergraduate universities in Shandong Province, China, for factor analysis. The institutions were randomly chosen before the distribution of the self-administered surveys. Respondents answered all 15 questions without omissions, allowing exploratory factor analysis (EFA) to fully use every item. The data were analysed using exploratory factor analysis using SPSS 26 software. Simultaneously, reliability analysis assessed item performance across the domains of Creativity, Risk-taking, and Inspiration to clarify the correlation between entrepreneurial qualities and university student entrepreneurship.

The criteria for deriving the investigation's conclusions using EFA have been classified into several interests. This involves preserving items that are related to those analysed according to the results of the Kaiser–Meyer–Olkin (KMO) and Bartlett tests, with criterion $p < .05$ and KMO value $> .50$. This encompasses retained items that may be used for further analysis using the eigenvalue findings and factor loadings, according to a total eigenvalue criterion above 1 and a percentage variance criterion of ± 60%. Additionally, Cronbach's alpha values for each construct adhere to the factor loading criterion of ±.50(Hair, 2009).

*Research Instrument*

The researchers developed a systematic questionnaire with 15 questions that assessed AL in students using a 7-point interval scale, where 1 signifies "strongly disagree" and 7 denotes "strongly agree."

The questionnaire items were translated from English into Chinese using the back-translation method to ensure linguistic equivalence and clarity. Two bilingual experts reviewed the translated version to confirm the accuracy and appropriateness of the wording before data collection(Brislin, 1970).

The measurement of creativity used 7 items that were adopted (Ayelotan, 2024; Roy & Das, 2022b). The evaluation of creativity included 4 items developed (Hamburg, 2024). Finally, the Inspiration was tested utilizing 4 items that were adopted (Mujtaba, Zulkiffli, Padlee, Wan, et al., 2025; Roy & Das, 2022b).

*Expert Content Validation*

AL measuring instruments have been developed for previous research for different ages, cultures, populations, subjects, education levels, or industries (Coleman et al., 2016; Miranda et al., 2022; Rahman, 2023; Rahman et al., 2023).. Pre-tests have been conducted to validate the instruments developed for this investigation. After developing the questionnaire, the instrument was assessed by five experts (both academics and entrepreneurs who have experience in the relevant field), to determine the extent to which the instrument covers all the main characteristics of the construct. This is to check if the material was appropriate and consistent with the aims of the study. The validity of the material is evaluated in terms of language, structure and a set of questions sufficient

to test the notion and sequence of sentences. The ultimate relevance of the sought stuff.

Therefore, the criteria validity has been checked by five experts to ensure the suitability of the scales used for data evaluation in the statistical analysis. The experts provided appropriate ideas on several concerns that require modification and rephrasing to prevent dual-tier inquiry. The answers resulted in a rewrite of the questionnaire, which was then reviewed by three professionals from research institutions. These experts were requested to review the questionnaire for reliability, validity, relevance and clarity before assessing the consistency of their responses.

Exploratory Factor Analysis

This study obtained a minimum of 150 replies for the EFA method. EFA cannot be directly evaluated; nevertheless, it is represented as a collection of items that illustrates the intrinsic relationships among the variables in the study (Hair Jr. et al., 2014). Exploratory Factor Analysis (EFA) has been used when the number of variables in a collection is indeterminate (Fabrigar & Wegener, 2012). The substantial data was transformed into new variables in reduced sets by Exploratory Factor Analysis (EFA) to mitigate information loss in this study (Hair, 2009; Hair Jr. et al., 2014; Howard, 2016; Rahman et al., 2023)

**Results**

Before completing the exploratory factor analysis (EFA), the Entrepreneurship Quality Scale was examined by an expert panel of five entrepreneurship academics and practitioners for the relevance, clarity, and application of assessment items. Content validity was evaluated using the Item Level Content Validity Index (I-CVI) and Universal Agreement (UA) (Lynn, 1986; Polit & Beck, 2006). Most of the items had good consistency across experts as shown in Table X and some items had 1.00 (out of 10) I-CVI value which indicated great content validity. However, two items with low I-CVI (less than 0.50) were dropped owing to lack of unanimity among experts. Furthermore, some items with the I-CVI value of 0.80 have been altered to increase uniformity and readability of phrasing based on expert comments. Overall, the S-CVI score was above the required threshold of 0.80, suggesting that the scale has good content validity and is acceptable for additional exploratory factor analysis and reliability testing.

Table 1 Content Validity Results of the Entrepreneurial Quality Instrument

| **Construct** | **Item** | **Expert Agreement** | **I-CVI** | **UA** |
|---|---|---|---|---|
| | CT1 | 5 | 1.00 | 1 |
| | CT2 | 5 | 1.00 | 1 |

| | | | | |
|---|---|---|---|---|
| | CT3 | 5 | 1.00 | 1 |
| | CT4 | 5 | 1.00 | 1 |
| | CT5 | 5 | 1.00 | 1 |
| | CT6 | 5 | 1.00 | 1 |
| | CT7 | 4 | 0.80 | 0 |
| | CT8 | 2 | 0.40 | 0 |
| Creativity | | | | |
| | RT1 | 2 | 0.40 | 0 |
| | RT2 | 5 | 1.00 | 1 |
| | RT3 | 5 | 1.00 | 1 |
| | RT4 | 5 | 1.00 | 1 |
| Risk-taking | RT5 | 4 | 0.80 | 0 |
| | IP1 | 5 | 1.00 | 1 |
| | IP2 | 4 | 0.80 | 0 |
| | IP3 | 5 | 1.00 | 1 |
| Inspiration | IP4 | 4 | 0.80 | 0 |
| Overall S-CVI | | | 0.86 | 0.59 |

Note: I-CVI = Item-level Content Validity Index; UA = Universal Agreement; S-CVI = Scale-level Content Validity Index

In the factor analysis, questionnaires comprised 15 items in the entrepreneurial quality (EQ) construct items, which were examined and also divided relying on 3 dimensions. Specifically, this includes 7 items in the dimension for the creativity coded as GT1 to GT7, 4 items in the Risk-taking dimension coded as RT1 to RT4, 4 items in the inspiration dimension coded as IP1 to IP4. The results for EFA are displayed in Table 3 below, showing the KMO as well as Bartlett's tests as well as eigenvalues, factor loading, and, lastly, Cronbach's alpha score in each dimension.

Table 2 displays the descriptive statistics for each item. Each item has a mean value that falls between 4.54 and 4.85, and the standard deviation falls between 1.118 and 1.293.

Table 2 Descriptive Statistics for the Items Measuring Entrepreneurial Quality

| Item | Statement | Mean | Std. Deviation |
|---|---|---|---|
| Creativity | | | |
| CT1 | I purposefully seek to solve problems that others fail | 4.77 | 1.232 |

| | | | |
|---|---|---|---|
| | to recognize. | | |
| CT2 | I always adopt new ways of doing things, even if I am not sure about the outcome | 4.67 | 1.207 |
| CT3 | I am able to think creatively. | 4.71 | 1.155 |
| CT4 | Intentional acquisition of skills in creativity methods, such as brainstorming | 4.69 | 1.210 |
| CT5 | I often come up with new and practical ideas to improve performance. | 4.73 | 1.157 |
| CT6 | I exhibit creativity on the job when given the opportunity. | 4.71 | 1.167 |
| CT7 | I often search for new technologies, processes, techniques, or product ideas. | 4.69 | 1.118 |
| | **Total Score Mean for Construct (Creativity)** | 32.97 | |
| Risk-taking | | | |
| RT1 | I would rather accept risks to pursue opportunities than miss them entirely. | 4.70 | 1.122 |
| RT2 | I am willing to take calculated risks in business situations. | 4.58 | 1.183 |
| RT3 | I am only willing to take a risk if I am sure everything will work out. | 4.67 | 1.167 |
| RT4 | I am prepared to risk my career for my business. | 4.84 | 1.136 |
| | **Total Score Mean for Construct (**Risk-taking**)** | 18.79 | |
| Inspiration | | | |
| IP1 | I am inspired to start a business through entrepreneurship education. | 4.71 | 1.144 |
| IP2 | I concur that having my own business gives me a fantastic sense of accomplishment. | 4.85 | 1.178 |
| IP3 | I have devoted considerable effort to developing my creativity and entrepreneurial abilities over the past year. | 4.54 | 1.293 |
| IP4 | I believe that entrepreneurial inputs that significantly altered my “heart and mind” and led me to pursue starting a business. | 4.69 | 1.194 |
| | **Total Score Mean for Construct (**Inspiration**)** | 18.79 | |

Kaiser-Meyer Olkin (KMO) and Bartlett’s Tests

Principal Component Analysis (PCA) with Varimax Rotation has been utilized during the EFA method using 15 items. The findings in Table 3 suggested that Bartletts' Test of Sphericity is significant (p-Value < .05). Moreover, since they are greater than the minimum value of .60, the findings ofthe KMO measure of sample adequacy, which was 0.911, 0.841, and 0.802, were satisfactory.(Alomi & Rayah, 2020; Jusoh et al., 2022; Shkeer & Awang, 2019a) The two findings show that there is enough data to proceed with the reduction of data strategy. All components ofthe EQ construct may be employed as a tool for collecting data based on the outcomes.

Table 3 *The KMO and Bartlett's Test*

| **KMO and Bartlett's Test (Creativity)** | |
|---|---|
| KMO Measure of Sampling Adequacy. | .911 |
| Bartlett's Test of Sphericity (Approx. Chi-Square) | 1386.150 |
| df | 21 |
| Sig. | .000 |
| **KMO and Bartlett's Test (Risk-taking)** | |
| KMO Measure of Sampling Adequacy. | .841 |
| Bartlett's Test of Sphericity (Approx. Chi-Square) | 400.534 |
| df | 6 |
| Sig. | .000 |
| **KMO and Bartlett's Test (Inspiration)** | |
| KMO Measure of Sampling Adequacy. | .802 |
| Bartlett's Test of Sphericity (Approx. Chi-Square) | 609.161 |
| df | 6 |
| Sig. | .000 |

*Eigenvalues*

The elements of EFA based on Eigenvalues greater than 1.0 are displayed in Table 4. Creativity (84.581%), risk-taking (79.031%), and inspiration (85.906) all explained more variance than the required 60% (Yahaya et al., 2018).

Table 4 Components and Total Variance Explained for Entrepreneurial Quality

| **Construct** | **Initial Eigenvalues** | | | |
|---|---|---|---|---|
| | **Component** | **Total %** | **Variance %** | **Cumulative %** |
| Creativity | 1 | 5.921 | 84.581 | 84.581 |
| Risk-taking | 1 | 3.161 | 79.031 | 79.031 |
| Inspiration | 1 | 3.436 | 85.906 | 85.906 |

This table provides empirical validation of the trinity framework of core entrepreneurial traits "Innovation, Risk, and Inspiration." Data analysis reveals: The factor loadings for the seven items representing "Creativity" (CT1-CT7) range from .901 to .936, those for

the four items representing "Risk-Taking" (RT1-RT4) range from .876 to .903, and those for the four items representing "Inspiration" (IP1-IP4) range from .904 to .963 all values significantly exceed the .70 threshold for high psychometric standards, indicating the scale possesses excellent construct validity. This means each item reliably and consistently measures its corresponding latent trait.

Table 5 Components and Items Used in The Study

| Construct | Item Code | Loading |
|---|---|---|
| Creativity | CT1 | .928 |
| | CT2 | .914 |
| | CT3 | .911 |
| | CT4 | .914 |
| | CT5 | .936 |
| | CT6 | .901 |
| | CT7 | .933 |
| Risk-taking | RT1 | .903 |
| | RT2 | .879 |
| | RT3 | .876 |
| | RT4 | .897 |
| Inspiration | IP1 | .918 |
| | IP2 | .922 |
| | IP3 | .904 |
| | IP4 | .963 |

Cronbach's Alpha

Cronbach's alpha value has been computed to determine the internal reliability of the component which evaluates EQ constructs and to investigate the consistency of findings throughout items for a related construct. Moreover, each item in the EQ construct has a Cronbach's alpha value > .60. Cronbach's alpha for the GF code is specifically .969, followed by the PKO code with .911 and the FBB code with .944. As a result, each instrument in the construct has a high dependability value since each indicator's Cronbach's Alpha value is more than .60, so all items in the indicator also have a high probability of different questions because the CA value is on the index that passes the minimum requirement of .70< r11 < .95 which confirms the internal consistency of each item and have high differentiating power (Table 6). Therefore, the measurement instrument for each construct is valid, reliable, and eligible to be used for further testing (Pallant, 2020).

Table 6 Reliability Analysis of the Items for Entrepreneurial Quality

| No | Construct | Code | No of Items | Cronbach's Alpha | Discrimination Index | Interpretation of Differentiating Power |
|---|---|---|---|---|---|---|
| 1 | Creativity | CT | 7 | .969 | .70< r11 < .95 | High Reliability |
| 2 | Risk-taking | RT | 4 | .911 | .70< r11 < .95 | High Reliability |
| 3 | Inspiration | IP | 4 | .944 | .70< r11 < .95 | High Reliability |

The EFA results are summarized in Table 7. The KMO and Bartlett tests, eigenvalues, loading factor, and Cronbach's alpha values all show that the EFA results match the criteria. Therefore, none of the 15 items across 3 dimensions were excluded from being utilized as a tool for data collection. Given every item that satisfies the criteria, the items were used to measure the EQ of university students.

Table 7 Summary of Exploratory Factor Analysis (EFA) and Reliability Analysis Results

| Code | Item Description | Exploratory Factor Analysis | | | | |
|---|---|---|---|---|---|---|
| | | **Factor Loading** | **KMO** | **Eigen values** | **% of Variance (85.686)** | **Reliability Test (Cronbach's Alpha)** |
| Factor 1: Creativity | | | 0.911 | 5.921 | 84.581 | 0.964 |
| CT1 | I purposefully seek to solve problems that others fail to recognize. | .928 | | | | |
| CT2 | I always adopt new ways of doing things, even if I am not sure about the outcome | .914 | | | | |
| CT3 | I am able to think creatively. | .911 | | | | |
| CT4 | I intentionally acquire skills related to creativity methods, such as brainstorming. | .914 | | | | |
| CT5 | I often come up with new and practical ideas to improve performance. | .936 | | | | |
| CT6 | I exhibit creativity on the job when given the opportunity. | .901 | | | | |
| CT7 | I often search for new technologies, processes, techniques, or product ideas. | .933 | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Factor 2: Risk-taking | | | 0.841 | 3.161 | 79.031 | 0.911 |
| RT1 | I would rather accept risks to pursue opportunities than miss them entirely. | .903 | | | | |
| RT2 | I am willing to take calculated risks in business situations. | .879 | | | | |
| RT3 | I am only willing to take a risk if I am sure everything will work out. | .876 | | | | |
| RT4 | I am prepared to risk my career for my business. | .897 | | | | |
| Factor 3: Inspiration | | | 0.802 | 3.436 | 85.906 | 0.944 |
| IP1 | I am inspired to start a business through entrepreneurship education. | .918 | | | | |
| IP2 | I concur that having my own business gives me a fantastic sense of accomplishment. | .922 | | | | |
| IP3 | I have devoted considerable effort to developing my creativity and entrepreneurial abilities over the past year. | .904 | | | | |
| IP4 | I believe that entrepreneurial inputs that significantly altered my “heart and mind” and led me to pursue starting a business. | .963 | | | | |

**Discussion**

This research used exploratory factor analysis to evaluate Shandong university students' opinions of three categories related to entrepreneurial quality (EQ). A 7-point interval scale was used, since it affords enhanced accuracy for the measurement model and presents a wider array of response alternatives than a 5-point scale. Exploratory component analysis indicated that the factor assessing had relationships across all items. This component demonstrated substantial reliability (Cronbach's alpha values between 0.911 and 0.969), indicating that the scale operated as planned within the study setting. The final questionnaire had 15 questions due to factor loadings < 0.50. This choice is consistent with Hair (2009) and Pallant (2020), who advocate for a minimum loading value of 0.50 for items in factor analysis. This research effectively established a measuring dimension for the entrepreneurial quality (EQ) concept. A sample size of 150 students from a public university in China satisfied the requisite conditions for exploratory factor analysis (EFA) (Hair, 2009; Shkeer & Awang, 2019b).

The expert content validation process strengthened the quality and appropriateness of the entrepreneurial quality instrument. Most items achieved satisfactory I-CVI values and high expert agreement, indicating that the retained items were suitable for measuring Creativity, Risk-taking, and Inspiration. Consistent with the recommendations of Lynn, (1986) and Polit and Beck (2006), items with low I-CVI values were removed, while several items were revised to improve wording clarity and sentence consistency. In particular, all items were standardized using first-person statements beginning with “I” to enhance respondents’ interpretation and response consistency.

University students can make their entrepreneurial efforts better by taking part in startup competitions that encourage new ideas, using contests to test their ideas, working with startup incubators that provide industry resources and mentorship for ongoing support, and forming teams that work well together. They can make their businesses better by being creative, getting inspired, and being willing to take risks. This will make them better entrepreneurs. The path to improving the quality of entrepreneurs is based on strong empirical evidence: any educational or training program that aims to improve college students' entrepreneurial performance systematically should focus on scientifically developing and measuring their creativity, risk management skills, and ability to turn inspiration into action. This method allows for a big jump in the quality of entrepreneurs by using a cycle of "inspiration-driven direction, innovative solution development, and risk calibration processes."

This research reached a moderate three-dimensional milestone based on the EFA findings. Moreover, the instrument's validity was thoroughly assessed with the contributions of five experts, especially in the initial phase of instrument development. Consequently, the EQ instrument is accessible to all, including academics, educators, scholars, and the higher education system, to identify the most effective EQ techniques. Additionally, this study aids students and educators in more effectively recognizing entrepreneurial qualities and fosters university students' interest in innovation and entrepreneurship, thus fulfilling the educational goal of enhancing their entrepreneurial skills. In this context, it is expected that this research will serve as a foundational

reference for subsequent studies aimed at improving the quality of university student entrepreneurship.

## Conclusion

The research employed exploratory factor analysis (EFA) to explore the entrepreneurial qualities (EQ) of college students with the intention of returning to hometown to start a business in Shandong Province, China. The study findings indicate the three crucial elements of entrepreneurial quality – innovation, risk taking and inspiration. All retained items had factor loadings > 0.50, and the results of KMO and Bartlett tests confirmed the data was eligible for factor analysis. In addition, the Cronbach's alpha coefficient ranges from 0.911 to 0.969, indicating that the scale has high internal consistency reliability. The findings show that this scale has strong validity and reliability and may be used to assess the entrepreneurial qualities of college students back to their hometown.

This research adds to the literature on measuring the quality of entrepreneurship by establishing a contextualised entrepreneurship quality assessment instrument for college students returning to their hometowns to start enterprises. The findings also corroborate the notion of constrained rational planned behaviour, which states that in uncertain environments, creativity, inspiration and risk-taking may influence entrepreneurial abilities. Indeed, this technology may assist universities and policy makers to strengthen entrepreneurial education and rural revitalisation activities. However, the research was confined to students in Shandong Province and only exploratory factor analysis (EFA) was performed. Larger sample numbers and confirmatory factor analysis (CFA) are suggested for future studies to further validate this instrument.

## REFERENCE


Abbas, J., Raza, S., Nurunnabi, M., Minai, M. S., & Bano, S. (2019). The impact of entrepreneurial business networks on firms' performance through a mediating role of dynamic capabilities. *Sustainability*, *11*(11), 3006.

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, Theories of Cognitive Self-Regulation*, *50*(2), 179–211. https://doi.org/10.1016/0749-5978(91)90020-T

Alomi, Y. A., & Rayah, I. H. A. A. (2020). Reliability and Validity of Biostatical Analysis used for Pharmacy Research Questionnaire in Saudi Arabia. *PTB Reports*, *6*(3). https://ptbreports.org/wp-content/uploads/2024/06/PTBReports-6-3-96.pdf

Amabile, T. M. (1997). Entrepreneurial Creativity Through Motivational Synergy. *The Journal of Creative Behavior*, *31*(1), 18–26. https://doi.org/10.1002/j.2162-6057.1997.tb00778.x

Amesi, J. (2018). *Challenges Hindering the Availability of Instructional Resources for Entrepreneurial Skills Acquisition among Business Education Students in Tertiary Institutions, Rivers State*. *4*(1).

Ayelotan, O. I. (2024). *Influence of Social Capital, Innovation and Creativity Skills on Entrepreneurial Intention and Readiness of Undergraduate Students of Public Polytechnics* [Ph.D.]. https://www.proquest.com/docview/3097746895/abstract/A6DFBDD36F664BBAPQ/3

Bodolica, V., Spraggon, M., & Badi, H. (2021). Extracurricular activities and social entrepreneurial leadership of graduating youth in universities from the Middle East. *The International Journal of Management Education*, *19*(2), 100489. https://doi.org/10.1016/j.ijme.2021.100489

Brachert, M., Hyll, W., & Sadrieh, A. (2020). Entry into self-employment and individuals' risk-taking propensities. *Small Business Economics*, *55*(4), 1057–1074. https://doi.org/10.1007/s11187-019-00173-6

Bradley, S. W., Kim, P. H., Klein, P. G., McMullen, J. S., & Wennberg, K. (2021). Policy for innovative entrepreneurship: Institutions, interventions, and societal challenges. *Strategic Entrepreneurship Journal*, *15*(2), 167–184. https://doi.org/10.1002/sej.1395

Brislin, R. W. (1970). Back-Translation for Cross-Cultural Research. *Journal of Cross-Cultural Psychology*, *1*(3), 185–216. https://doi.org/10.1177/135910457000100301

Brophy, D. R. (1998). Understanding, Measuring, and Enhancing Individual Creative Problem-Solving Efforts. *Creativity Research Journal*, *11*(2), 123–150. https://doi.org/10.1207/s15326934crj1102_4

Carayannis, E. G., Samara, E. T., & Bakouros, Y. L. (2015). *Innovation and Entrepreneurship: Theory, Policy and Practice*. Springer International Publishing. https://doi.org/10.1007/978-3-319-11242-8

Carroll, G. R., & Mosakowski, E. (1987). The career dynamics of self-employment. *Administrative Science Quarterly*, 570–589.

Chen, S., & Chen, J. (2023a). Study on the Willingness Dilemma and Support System of College Students Returning to Home for Entrepreneurship under the Background of Rural Revitalization. *Journal of Humanities, Arts and Social Science*, *7*(2). https://www.hillpublisher.com/ArticleDetails/1463

Chen, S., & Chen, J. (2023b). Study on the willingness dilemma and support system of college students returning to home for entrepreneurship under the background of rural revitalization. *Journal of Humanities, Arts and Social Science*, *7*(2). https://www.hillpublisher.com/ArticleDetails/1463

China Central Television Network. (2025, December 7). *Innovation Drives New Productive Forces to Flourish*. https://m.cyol.com/gb/articles/2025-12/07/content_qb2XWXCpdL.html

Cnossen, B., Loots, E., & Van Witteloostuijn, A. (2019). Individual motivation among entrepreneurs in the creative and cultural industries: A self-

determination perspective. *Creativity and Innovation Management*, *28*(3), 389–402. https://doi.org/10.1111/caim.12315

Coleman, S., Nixon, J., Keen, J., Muir, D., Wilson, L., McGinnis, E., Stubbs, N., Dealey, C., & Nelson, E. A. (2016). Using cognitive pre-testing methods in the development of a new evidenced-based pressure ulcer risk assessment instrument. *BMC Medical Research Methodology*, *16*(1), 158. https://doi.org/10.1186/s12874-016-0257-5

Cooke, P., Heidenreich, M., & Braczyk, H.-J. (2024). Introduction: Regional innovation systems–an evolutionary approach. In *Regional innovation systems* (pp. 1–18). Routledge. https://www.taylorfrancis.com/chapters/edit/10.4324/9781003572381-1/introduction-philip-cooke-martin-heidenreich-hans-joachim-braczyk

Dess, G. G., & Lumpkin, G. T. (2005). The Role of Entrepreneurial Orientation in Stimulating Effective Corporate Entrepreneurship. *Academy of Management Perspectives*, *19*(1), 147–156. https://doi.org/10.5465/ame.2005.15841975

El-Murad, J., & West, D. C. (2004). The definition and measurement of creativity: What do we know? *Journal of Advertising Research*, *44*(2), 188–201.

Fabrigar, L. R., & Wegener, D. T. (2012). *Exploratory factor analysis*. Oxford University Press. https://books.google.com/books?hl=zh-CN&lr=&id=O1H0DKmX7TMC&oi=fnd&pg=PP1&dq=Exploratory+Factor+Analysis+(EFA)+has+been+used+when+the+number+of+variables+in+a+collection+is+indeterminate+&ots=cVJSfhpgpl&sig=KsQAKNPct98cnzPZd1Jxtv-pJNI

Faggian, A., Modrego, F., & McCann, P. (2019). Human capital and regional development. *Handbook of Regional Growth and Development Theories*, 149–171.

Feng, J., Allen, D. G., & Seibert, S. E. (2022). Once an entrepreneur, always an entrepreneur? Entrepreneurial identity, job characteristics, and voluntary turnover of former entrepreneurs in paid employment. *Personnel Psychology*, *75*(1), 179–213. https://doi.org/10.1111/peps.12455

Hair, J. F. (2009). *Multivariate data analysis*. https://digitalcommons.kennesaw.edu/facpubs/2925/

Hair Jr. F., Gabriel M. L. D. S., & Patel V. K. (2014, May 1). *AMOS COVARIANCE-BASED STRUCTURAL EQUATION MODELING (CB-SEM): GUIDELINES ON ITS APPLICATION AS A MARKETING RESEARCH TOOL. | EBSCOhost*. https://doi.org/10.5585/remark.v13i2.2718

Hamburg. (2024). Entrepreneurial marketing and performance: Contingent role of market turbulence. *Discover Sustainability*, *5*(1), 492. https://doi.org/10.1007/s43621-024-00710-8

He, W., & Ding, L. (2023). Rural Development and Entrepreneurship: Exploration of Entrepreneurial Intention in Rural Area Among Chinese University Students. *Sage Open*, *13*(3), 21582440231198811. https://doi.org/10.1177/21582440231198811

Howard, M. C. (2016). A Review of Exploratory Factor Analysis Decisions and Overview of Current Practices: What We Are Doing and How Can We Improve? *International Journal of Human-Computer Interaction*, *32*(1), 51–62. https://doi.org/10.1080/10447318.2015.1087664

Huimin, M., Wu, X., Yan, L., Huang, H., Wu, H., Xiong, J., & Zhang, J. (2018). Strategic Plan of "Made in China 2025" and Its Implementation. In *Analyzing the Impacts of Industry 4.0 in Modern Business Environments* (pp. 1–23). IGI Global Scientific Publishing. https://doi.org/10.4018/978-1-5225-3468-6.ch001

Ibrahim, I. D., & Adeniyi, A. (2024). *Cultivating an entrepreneurial mindset to address unemployment through innovation, adaptability and interdisciplinary research*. https://doi.org/10.51415/ajims.v6i1.1386

Jiang, J., & Zhang, H. (2024). Study on the Dilemmas and Pathways of College Students Returning to Their Hometowns for Entrepreneurship under the Background of Common Prosperity. *Frontiers in Business, Economics and Management*, *13*(1), 226–229. https://doi.org/10.54097/fem3xx84

Jusoh, N., Ali, M. W., Abdullah, T. A. T., & Husain, A. (2022). Validation construct items for the measurement model of permit to work using exploratory factor analysis. *International Journal of Business and Globalisation*, *30*(3/4), 462. https://doi.org/10.1504/IJBG.2022.123621

Kim, J. S. H. (2020). *Self-Employment in Later Life*. University of California, Irvine. https://search.proquest.com/openview/39f1bbd128f8186fa21be1a83798df76/1?pq-origsite=gscholar&cbl=18750&diss=y

Kim, J., Terlaak, A., & Yu, N. (2023). A Carnegie perspective on intermittent risk taking in entrepreneurship. *Frontiers in Psychology*, *14*, 1167243.

Kolb, D. A. (2014). *Experiential learning: Experience as the source of learning and development*. FT press. https://books.google.com/books?hl=zh-CN&lr=&id=jpbeBQAAQBAJ&oi=fnd&pg=PR7&dq=Kolb%27s+theory+of+experiential+learning+posits+that+experience+serves+as+a+significant+source+for+learning,+mindset+transformation,+and+personal+growth%3B+individuals+indeed+learn+from+their+experiences&ots=Vp6QpWZWPe&sig=jG381Sy4tfQepTCl_4Y8i9Tl-xU

Kris, E. (1939). On inspiration. *The International Journal of Psycho-Analysis*, *20*, 377.

Liang, H., & Huang, W. (2025). Technological Innovation Spurring New Quality Productive Forces and Its Global Effect. *China Finance and Economic Review*, *14*(1), 50–69. https://doi.org/10.1515/cfer-2025-0003

Liu, D. (2024). *Academic management innovation to foster teacherpreneur competency of normal university students in Yunnan province, China*. https://digital.car.chula.ac.th/chulaetd/74320/

Lynn, M. R. (1986). Determination and quantification of content validity. *Nursing Research*, *35*(6), 382–386.

Matyushok, V., Krasavina, V., Berezin, A., & García, J. S. (2021). The global economy in technological transformation conditions: A review of modern

trends. *Economic Research-Ekonomska Istraživanja*, *34*(1), 1471–1497. https://doi.org/10.1080/1331677X.2020.1844030

McCuen, R. H. (2023). *Critical Thinking, Idea Innovation, and Creativity*. CRC Press. https://www.taylorfrancis.com/books/mono/10.1201/9781003380443/critical-thinking-idea-innovation-creativity-richard-mccuen

Miranda, C., Goñi, J., Pickenpack, A., & Sotomayor, T. (2022). The ethical implications of collecting data in educational settings: Discussion on the technology and engineering attitude scale (TEAS) and its psychometric validation for assessing a pre-engineering design program. *International Journal of Technology and Design Education*, *32*(3), 1495–1513.

Mohammed, M., & Zheng, M. (2023). *The impact of macroeconomic factorson the propensity of risk: How macroeconomic factors influence the level of risk in different stock market*. https://www.diva-portal.org/smash/record.jsf?pid=diva2:1799025

Motta, V. F., & Galina, S. V. R. (2023). Experiential learning in entrepreneurship education: A systematic literature review. *Teaching and Teacher Education*, *121*, 103919.

Mujtaba, G., Zulkiffli, S. N. 'Atikah, Padlee, S. F., Mohamed, W. N., & Sukri, N. K. A. (2025a). Impact of entrepreneurial inspiration, awareness, and skills on university students' entrepreneurial intentions: The mediating role of entrepreneurial education. *Administrative Sciences*, *15*(1), 15.

Mujtaba, G., Zulkiffli, S. N. 'Atikah, Padlee, S. F., Mohamed, W. N., & Sukri, N. K. A. (2025b). Impact of entrepreneurial inspiration, awareness, and skills on university students' entrepreneurial intentions: The mediating role of entrepreneurial education. *Administrative Sciences*, *15*(1), 15.

Mujtaba, G., Zulkiffli, S. N. 'Atikah, Padlee, S. F., Wan, N. M., & Sukri, N. K. A. (2025). Impact of Entrepreneurial Inspiration, Awareness, and Skills on University Students' Entrepreneurial Intentions: The Mediating Role of Entrepreneurial Education. *Administrative Sciences*, *15*(1). https://doi.org/10.3390/admsci15010015

Munir, H., Ramzan, S., Wang, M., Rasool, Y., Sumbal, M. S., & Iqbal, A. (2022). Combining the social cognitive career theory, contextual factors and entrepreneurship education programs in intention-based model: A tale of two diverse regions. *Journal of Entrepreneurship in Emerging Economies*, *14*(3), 392–421.

Murnieks, C. Y., Klotz, A. C., & Shepherd, D. A. (2020a). Entrepreneurial motivation: A review of the literature and an agenda for future research. *Journal of Organizational Behavior*, *41*(2), 115–143. https://doi.org/10.1002/job.2374

Murnieks, C. Y., Klotz, A. C., & Shepherd, D. A. (2020b). Entrepreneurial motivation: A review of the literature and an agenda for future research. *Journal of Organizational Behavior*, *41*(2), 115–143. https://doi.org/10.1002/job.2374

Neff, G. (2012). *Venture labor: Work and the burden of risk in innovative industries*. MIT press. https://books.google.com/books?hl=zh-CN&lr=&id=n7SyxTXy0sYC&oi=fnd&pg=PR7&dq=++Venture+development,+while+often+yielding+comparable+average+returns+to+wage+employment,+is+inherently+riskier+due+to+the+far+higher+variability+in+its+payoffs.&ots=ZwCKviMtgN&sig=wB2FpOwTOFyd5nCIZd4qUMp-ums

NEWS. (2025, January 2). *Top Ten Industries Outlook 2025: New Quality Productivity Paves the Way for a New Journey Across All Sectors*. http://www.news.cn/finance/20250102/7fa77c1b9de84228a3d2e3bb6c6c8a1d/c.html

Ng, T. (2023). *Factors affecting the decision to study abroad to start a business of students at the University of Food Industry in Ho Chi Minh City*.

Pallant, J. (2020). *SPSS Survival Manual: A step by step guide to data analysis using IBM SPSS* (7th edn). Routledge. https://doi.org/10.4324/9781003117452

Pennetta, S., Anglani, F., & Mathews, S. (2023). Navigating through entrepreneurial skills, competencies and capabilities: A systematic literature review and the development of the entrepreneurial ability model. *Journal of Entrepreneurship in Emerging Economies*, *16*(4), 1144–1182. https://doi.org/10.1108/JEEE-09-2022-0257

Piergiovanni, R., Carree, M. A., & Santarelli, E. (2012). Creative industries, new business formation, and regional economic growth. *Small Business Economics*, *39*(3), 539–560. https://doi.org/10.1007/s11187-011-9329-4

Polit, D. F., & Beck, C. T. (2006). The content validity index: Are you sure you know what's being reported? critique and recommendations. *Research in Nursing & Health*, *29*(5), 489–497. https://doi.org/10.1002/nur.20147

Prasad Singh, P., & Murugesan, S. (2025). *CONVERGENCE OF CUTTING-EDGE TECHNOLOGIES: INNOVATIONS IN GENETIC ENGINEERING, BIOTECHNOLOGY, AI, AND QUANTUM COMPUTING* (pp. 25–39).

Pundziene, A., Nikou, S., & Bouwman, H. (2022). The nexus between dynamic capabilities and competitive firm performance: The mediating role of open innovation. *European Journal of Innovation Management*, *25*(6), 152–177.

Rahman, A. A. (2023). *International Journal of Educational Methodology*. https://pdf.ijem.com/IJEM_9_4_671.pdf

Rahman, A. A., Sahid, S., & Nasri, N. M. (2023). Exploratory Factors and Reliability Analysis of Active Learning Techniques Instruments to Assess Business Subjects of Secondary School Students in Malaysia. *International Journal of Educational Methodology*, *9*(4), 671–684.

Ranasinghe, H. K. G. S., Yajid, M. S. A., Khatibi, A., & Azam, S. F. (2018). A systematic literature analysis on entrepreneurial orientation and business performance. *Journal of Business Economics and Finance*, *7*(3), 269–287.

Reimers, F. M. (2024). Entrepreneurship education to improve the world:The role of the sustainable development goals to stimulate innovation in higher education. *Entrepreneurship Education*, *7*(3), 203–217. https://doi.org/10.1007/s41959-024-00127-4

Rogow, A. A. (1957). *Models of Man: Social and Rational*. JSTOR. https://www.jstor.org/stable/2109314

Roy, R., & Das, N. (2022a). Exploring entrepreneurial intention among engineering students in India: A multiple basket approach. *International Journal of Technology and Design Education*, *32*(1), 555–584. https://doi.org/10.1007/s10798-020-09596-9

Roy, R., & Das, N. (2022b). Exploring entrepreneurial intention among engineering students in India: A multiple basket approach. *International Journal of Technology and Design Education*, *32*(1), 555–584. https://doi.org/10.1007/s10798-020-09596-9

Schindler, I., Zink, V., Windrich, J., & Menninghaus, W. (2013). Admiration and adoration: Their different ways of showing and shaping who we are. *Cognition & Emotion*, *27*(1), 85–118. https://doi.org/10.1080/02699931.2012.698253

Shao, L., Miao, Y., Ren, S., Cai, S., & Fan, F. (2024). Designing a framework for entrepreneurship education in Chinese higher education: A theoretical exploration and empirical case study. *Humanities and Social Sciences Communications*, *11*(1), 519. https://doi.org/10.1057/s41599-024-03024-2

Shapira, Z. (1995). *Risk taking: A managerial perspective*. Russell Sage Foundation. https://books.google.com/books?hl=zh-CN&lr=&id=e_AWAwAAQBAJ&oi=fnd&pg=PR7&dq=Risk-taking+is+a+fundamental+focus+of+investigation+for+several+schools+of+economic+and+management+theory&ots=W2adH-28ix&sig=loZxbSohv0HrAGbaQY9E1t4XxAI

Shkeer, A. S., & Awang, Z. (2019a). Exploring the items for measuring the marketing information system construct: An exploratory factor analysis. *International Review of Management and Marketing*, *9*(6), 87.

Shkeer, A. S., & Awang, Z. (2019b). EXPLORING THE ITEMS FOR MEASURING THE MARKETING INFORMATION SYSTEM CONSTRUCT: AN EXPLORATORY FACTOR ANALYSIS. *International Review of Management and Marketing*, *9*(6), 87–97. https://doi.org/10.32479/irmm.8622

Storper, M., & Scott, A. J. (2009). Rethinking human capital, creativity and urban growth. *Journal of Economic Geography*, *9*(2), 147–167.

Su, X., Liu, S., Zhang, S., & Liu, L. (2020). To be happy: A case study of entrepreneurial motivation and entrepreneurial process from the perspective of positive psychology. *Sustainability*, *12*(2), 584.

Trimpop, R. M. (1994). *The psychology of risk taking behavior* (Vol. 107). Elsevier. https://books.google.com/books?hl=zh-CN&lr=&id=rI4c24VTriEC&oi=fnd&pg=PP1&dq=+focusing+specifically+on+a+distinct+form+of+risk-taking:+intermittent+risk-taking,+characterized+by+decision-makers+oscillating+between+risk+acceptance+and+avoidance.&ots=RkNIzC7Qlv&sig=tK3HxN3ToicnORw7cJNu3fuAfbM

Westhead, P., & Wright, M. (1998). Novice, portfolio, and serial founders: Are they different? *Journal of Business Venturing*, *13*(3), 173–204.

Wilhelm, D. (1981). *Creative Alternatives to Communism: Guidelines for the Future*. Ardent Media.

Yahaya, T. A. B., Idris, K., Suandi, T., & Ismail, I. A. (2018). Adapting instruments and modifying statements: The confirmation method for the inventory and model for information sharing behavior using social media. *Management Science Letters*, 271–282. https://doi.org/10.5267/j.msl.2018.4.021

Yusuf, S. (2009). From creativity to innovation. *Technology in Society*, *31*(1), 1–8.

Zhang, J., Li, M., Wang, W., & Wang, L. (2025). The Construction and Practice of Using a Fuzzy Comprehensive Evaluation System for Project Maturity Based on the Sustainable Development of Entrepreneurship Among Chinese University Students. *Sustainability*, *17*(2), 703. https://doi.org/10.3390/su17020703

Zhang, W., Li, Y., Zeng, Q., Zhang, M., & Lu, X. (2022). Relationship between entrepreneurship education and entrepreneurial intention among college students: A meta-analysis. *International Journal of Environmental Research and Public Health*, *19*(19), 12158.

Wenjin Zhang
Faculty of Education,
Universiti Kebangsaan Malaysia, Malaysia

Sheerad Sahid*
Faculty of Education,
Universiti Kebangsaan Malaysia, Malaysia

Radin Siti Aishah Radin A Rahman
Faculty of Education,
Universiti Kebangsaan Malaysia, Malaysia

*Corresponding Author: sheerad@ukm.edu.my

Received: 09 January 2026
Reviewed: 2 Mac 2026
Accepted: 30 April 2026
Published: 30 May 2026